



September 8, 2015

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Nantucket Conservation Commission  
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**Subject: DEP File No. SE048-2824  
Baxter Road Geotextile Tubes, Sconset**

Dear Commissioners:

On behalf of the Sconset Beach Preservation Fund (SBPF), following is additional information on the above-referenced project in response to questions or comments from the Commission and others expressed at the September 2, 2015 hearing.

1. **Drainage System Design.** Members of the Commission questioned whether the proposed drainage system, especially the 50-foot long horizontal diffuser pipe, would destabilize the sand fill behind the geotubes. The drainage system design is being reviewed by Haley & Aldrich in Boston, MA. There are two features included in the design that will avoid destabilizing the geotextile tubes:
  - a. As mentioned at the hearing, Haley & Aldrich proposes to add a 12 inch x 12 inch stone-lined trench around the 50-foot long, 4 inch diameter diffuser pipe in order to facilitate infiltration. The stone trench and associated sand pipe will be placed entirely in the sand fill behind the uppermost geotextile tube; there will be no excavation into the bluff itself.
  - b. A small velocity dissipator will be added at the "T"-shaped intersection of the 6 inch pipe running down the face of the bluff and the horizontal diffuser pipe. This velocity dissipator will be a 3-foot diameter, 3-foot tall steel pipe section with welded "wings" inside. As shown on the attached sketch, water from the pipe running down the face of the bluff will enter the bottom of the steel pipe section and be slowed by the "wings" inside the velocity dissipator before being discharged at the top of the dissipator into the horizontal diffuser pipe. Additionally, as shown on the attached sketch, the

section of pipe at the bottom of the bluff will be changed to steel to add strength to the system.

2. **Monitoring Program:** SBPF has reviewed the comments from the Nantucket Land Council and their consultant in their 9/2/15 letter and wishes to offer the following clarifying points on the monitoring program:

- a. The post-storm reports will include photographs, estimated volume lost from sand template, estimated volume lost from adjacent unprotected sections, estimated beach level in front of the seaward geotextile tube, locations of exposed geotextile, need for repair, conditions of ends, proposed template actions (regrade or replenish), and any other observations. This detailed information will be submitted to the Commission within 7 days of a significant storm. The post-storm report data will also be considered as part of the project's annual assessment.
- b. The survey frequency has been increased from the proposed semi-annual basis to a quarterly basis in accordance with the DEP SOC. The project has added profiles within several hundred feet of the project's ends and in the middle of the project area.
- c. The project's reporting program already involves a commitment to provide an annual sand report that details the dates and volumes of sand placed, including copies of delivery tickets. If the Commission wishes, SBPF would be willing to supplement these annual reports with brief quarterly reports that state the date, volume, and location of any sand placement or grooming activities.
- d. SBPF intends to monitor the top of the bank in the project area and several hundred feet of its ends annually through aerial photogrammetry, LiDAR, or a similar method. This will provide a highly accurate means of calculating annual changes in the volume of the coastal bank, both in the project area and in the unprotected areas located directly to the north and south. This information can be used to assess: (1) the stability of the bank in project area, (2) rate of ongoing erosion of nearby sections of unprotected bank, and (3) loss of volume of unprotected bank and how this compares to the mitigation volume.

3. **Benthic Habitat Monitoring Proposal.** SBPF wishes to confirm that the benthic monitoring proposal involves characterizing the bottom sediments, including calculating the percent cobble along each transect. We understand the Commission's concern that the proposed benthic habitat monitoring program will be initiated after the geotextile tube system has been in place for over 18 months. As part of the assessment of any potential changes in benthic habitat, SBPF or its agents will review existing information on the characteristics of offshore benthic habitat prior to geotube installation, including the benthic survey information gathered as part of the beach nourishment project.
4. **Pre-1978 House Status:** SBPF provided detailed information on the history of homes in the project area as part of "Table 1. Construction Dates of Baxter Road Properties," submitted to the Commission on April 25, 2014. This table is attached to this letter for ease of reference. We understand the Commission had questions about 99 and 97 Baxter Road.
  - a. Specific to 99 Baxter Road, the information given to the Commission (and to DEP as part of the SOC request) indicates that the existing house was moved off the lot in 2005 and that a small part of 99 Baxter Road described as "400 sf storage shed – no plumbing" was moved to 99 Baxter Road in 2010.
  - b. Specific to 97 Baxter Road, the information given to the Commission (and to DEP as part of the SOC request) indicates that part of the dwelling at 97 Baxter Road was moved off the lot in 2010, leaving a 720 sf portion for 1 dwelling unit.

The performance standard at 310 CMR 10.30(3) indicates that both pre-1978 buildings and reconstructions of such buildings are eligible for protection by a coastal engineering structure. After review of the information of the history of buildings on both lots, DEP determined that both 97 and 99 Baxter were considered "pre-1978."

5. **2014 FEMA Flood Insurance Study:** SBPF's engineers, COWI, have reviewed the updated FEMA Flood Insurance Study, as well as updated information from NOAA and other sources on the conversion of tidal elevations (from NAVD88 to MLW). This analysis results in a final design height of the geotubes that is still several feet higher than the existing three tiers and supports the need for a fourth tier.

Nantucket Conservation Commission  
September 8, 2015

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Please feel free to contact me at (703) 489-8945 or  
[mhartnett@epsilonassociates.com](mailto:mhartnett@epsilonassociates.com) with any questions.

Sincerely,

EPSILON ASSOCIATES. INC.

A handwritten signature in black ink, reading "Maria B. Hartnett". The signature is written in a cursive, flowing style.

Maria B. Hartnett  
Senior Consultant